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ABSTRACT

This study profiled the preferred productivity and learning style preferences of 63 off-campus and 43 on-campus distance education students enrolled at Marshall University in Huntington, West Virginia, during Spring 1995. Using the Productivity Environmental Preference Survey (PEPS), it found no overall differences between the productivity and learning styles of the off-campus and on-campus distance education students. The study found that both on-campus and off-campus distance education students with a score of 60 or more preferred working and learning in a structured environment. On-campus students revealed a preference for learning in the afternoon, while off-campus students with a score of 40 or less preferred to learn in several ways, suggesting that a variety of learning opportunities and working patterns would be beneficial to these students. The study also discovered that off-campus and on-campus students with a score of 40 or less preferred to learn through the visual sense. (Contains 21 references.) (MDM)

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Description of the Productivity and Learning Style Preferences of On-and Off-Campus Distance Education Participants at Marshall University

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Abstract

The purpose of this study was to profile the preferred productivity and learning style preferences of on-and off-campus distance learners. The accessible population (N=167) for this study consisted of distance education students enrolled at Marshall University during Spring of 1995. A simple random sample was drawn to provide data for this study. The data collection instrument was the Productivity Environmental Preference Survey (PEPS). The PEPS (100 items) yield scores in 20 areas. The average internal consistency reliability for the 20 areas is .71. Descriptive statistics and t-tests were used to describe the data. Findings from this study suggest that both groups (on-and off-campus distance learners) had similar established patterns of productivity and learning style preferences.

Productivity and Learning Style Preferences of On-and Off-Campus Distance Education Participants at Marshall University.

In an effort to meet the needs of students who are remote from campus, many institutions of higher education have developed programs of distance education (Johnson, 1993).

Research on teaching effectiveness has been inconclusive in identifying a singular method of instruction that works well with all individuals. A growing body of research suggests students learn best when they are taught using methods that complement their preferred learning style.

Thies (1979) defined learning style as a biological and developmentally imposed set of personal characteristics that make a teaching method effective for some and ineffective for others. An instructional research model by Keefe and Monk (1988) viewed learning style as an umbrella term which encompasses cognitive, affective, and physiological/environmental dimensions. Gee (1991) and Starr (1994) found that no significant differences existed due to the effect of the learning style variable on the Attitude Survey results between on-and off-campus distance learners.

In four studies (Cholakis, 1986; DeBello, 1985; Miles, 1987; & Perrin, 1984), students' sociological preferences were identified and instructional strategies were matched with their preferences. They achieved significantly higher test scores in matched conditions and significantly lower test scores when mismatched. Students' time preferences--morning "early birds" versus afternoon "night owls"--for learning also influenced achievement. Most students are not morning alert. At the elementary school level, approximately 28 percent appear to be "early birds." A majority (60%) of high school learners, on the other hand, remain most alert in the late morning and afternoon (Price, 1980).

Objectives

1. To identify and describe the productivity and learning style preferences of on-and off-campus distance education students with a standard score of 60 or more (standard score > = 60).
2. To identify and describe the productivity and learning style preferences of on-and off-campus distance education students with a standard score of 40 or less (standard score < = 40).

3. To compare the productivity and learning style preferences of on-and off-campus students enrolled in distance education credit courses.

Theoretical Framework

Productivity style theorizes that each individual has a biological and developmental set of learning characteristics that are unique. Productivity will improve when the corporate organization and instruction are provided in a manner that capitalizes on each individual's learning strengths. This theory is based on the generally accepted concept that individual students at every age level differ in how they learn new and difficult information. The concept of individual differences is well established in the psychological and educational literature (Good & Brophy, 1986) and has been corroborated by the extensive research conducted with this model at more than 60 institutions of higher education in the United States (Price, Dunn, & Dunn, 1991). This learning style model also includes elements derived from the constructs of cognitive style (Kagen & Kogen, 1970) and brain lateralization (Ornstein & Thompson, 1984)

Productivity style, as a model, embraces several general principles in form of philosophical assumptions (Price, Dunn, & Dunn, 1991):

1. Most individuals are capable of learning.
2. The learning conditions in which different individuals learn best vary extensively.
3. Individual learning preferences exist and can be measured reliably.
4. Most students are self-motivated to learn when they have the option of using their learning style preferences and experience success.
5. Use of individual learning style strengths as the basis for instruction increase learning and productivity.

Research Procedures

Population and Sample

The accessible population (N=167) for this study, consisted of distance education students enrolled at Marshall University during Spring of 1995. A current enrollment list was obtained from the College of Adult and Extended Education which served as the sampling frame for this study. A simple random sample was drawn to provide data for this study.

According to Krejcie and Morgan (1970), a sample size of 117 is needed at a 95% confidence level to represent a population of 167.

Instrumentation

The instrument used to collect data for this study was the Productivity Environmental Preference Survey (PEPS) developed by Price, Dunn and Dunn (1991). PEPS is a 100-item (Likert-format) survey designed to diagnose adults' productivity and learning styles. Additionally, the instrument is useful for prescribing the type of environment, working conditions, activities, and motivating factors that would maximize individual output. The PEPS (100 items) yield scores in 20 areas.

The instrument was refined through two pilot administrations to establish face, construct, and predictive validity (Price, Dunn, & Dunn, 1991). The average internal consistency reliability as measured by Hoyt's (1941) analysis for the 20 areas is .71. The Hoyt analysis is equivalent to the Kuder-Richardson (1937) formula 20 (KR20).

The PEPS areas with highest reliabilities include: sound/noise level, light, temperature, design, persistent, responsible, structure,

learning alone/peer oriented, auditory, visual, intake, learning/working in evening/morning, late morning, afternoon, and mobility.

PEPS areas with low reliabilities include: motivation, authority figures present, learning in several ways, tactile, and kinesthetic.

For this study, content validity was assessed by a panel of experts composed of the dean of Adult and Extended Education, the program manager for telecourses, and teacher educators. The validation panel agreed that PEPS was a suitable instrument for the researcher to use in measuring the productivity and learning style preferences of distance education participants.

Data Collection

Data were collected during April of 1995. All 117 participants identified were sent a cover letter and a PEPS questionnaire via satellite facilitators. A follow-up mailing ensured high return. As a result, the final sample was comprised of responses of 63 off-and 43 on-campus students, for a return rate of 90.60%.

Interpretation of Productivity Environmental Preference Survey (PEPS)

Scores are reported as raw scores as well as standard scores. The standard score ranges from 20 to 80 with a mean of 50 and a

standard deviation of 10. The standard score is calculated based on a random sample of 1000 subjects from the national data base who have taken the PEPS (Price, Dunn, & Dunn, 1991).

Individuals having a standard score of 40 or less or 60 or more find that variable important when they study or work. Individuals having scores fall between 40 and 60 are varied with respect to how much that variable is important to them.

Analysis of Data

The data from the questionnaires (PEPS) were analyzed using the SPSS/PC+ Version 4.0 (Norusis/SPSS, Inc., 1990) computer software. Descriptive statistics and t-tests were used to describe the data.

Results and Discussion

The age range of the off-campus participants was 22 to 59 years with an average age of 40.09 years (SD=8.58). For the on-campus participants, the age range was 19 to 46 with an average age of 30 years (SD = 8.40). Wilson (1991), Miller, and Honeyman (1993) described off-campus learners as been typically older and generally maintain a professional career in addition to taking courses.

Objective 1: Both off-and on-campus students with a standard score of 60 or more, preferred working and learning in a structured environment (Table 1a).

Insert Table 1a about here

This suggests that structure for these students should clearly indicate time requirements and the resources that may be used. Learning through auditory sense was also a commonality for both off-and on-campus students (standard score > = 60). This finding appears to form a rationale why some students may participate in distance learning.

On-campus students revealed that they had a preference for learning in the afternoon as show in Table 1a. This finding indicates that scheduling of difficult tasks for on-campus distance learners in the afternoon would probably be of tremendous asset with the idea of taking advantage of the strongest segment of the time energy curve.

Objective 2: Off-campus students with a standard score of 40 or less, preferred to learn in several ways (Table 1b). Providing resources and opportunities for a variety of working patterns would be beneficial for this group of students in a working/learning environment.

Learning through visual sense was a preference for both on-and off-campus students (standard score < = 40). This finding suggests that these students were more inclined to listen to lecture and take notes before reading required materials.

Table 1b revealed that on-campus students preferred to be responsible. This suggests that instructors should explain why the tasks are important and speak collegially rather than authoritatively to students in the working or learning environment.

Insert Table 1b about here

Objective 3: This objective was accomplished by analyzing raw scores (PEPS) for both groups (on-and off-campus). No significant differences at the .05 level were found between on-campus and off-campus distance learners on the PEPS variables (20 areas).

Conclusions

The commonality of the emotional (the need for structure) and physical elements (perceptual preferences) between on-and off-campus distance learners had some influence in identifying their productivity and learning style preferences.

In this study, the type of environment, working conditions, activities, and motivating factors that would maximize individual output was not significant. This therefore, suggests that both groups had similar established patterns of productivity and learning style preferences.

Recommendations

Faculty teaching with distance education media should examine the results of this study before designing courses to meet individual needs.

Further research using other learning style instruments to diagnose learners (on-and off-campus) and how they interact with media methods in distance education classes should be conducted.

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Table 1a
Distribution of PEPS Area Responses for Distance Education Participants (Standard Score > =60)

	Classification (N=106)			
	Off Campus n=63		On Campus n=43	
PEPS Area	Responses	Percentage	Responses	Percentage
1. Noise Level	12	19.04	7	16.28
2. Light	9	14.28	4	9.30
3. Temperature	8	12.69	7	16.28
4. Design	3	4.76	2	4.65
5. Motivation	6	9.52	5	11.63
6. Persistent	5	7.93	2	4.65
7. Responsible	6	9.52	2	4.65
8. Structure	30	47.61	26	60.47
9. Learning Alone/ Peer Oriented	25	39.68	15	34.88
10. Authority Figures Present	23	36.50	13	30.23
11. Learn in Several Ways	3	4.76	1	2.33
12. Auditory	29	46.03	20	46.51
13. Visual	8	14.28	4	9.30
14. Tactile	18	28.57	9	20.93
15. Kinesthetic	9	14.28	7	16.28
16. Requires Intake	26	41.26	16	37.21
17. Evening-Morning	8	12.69	2	4.65
18. Late Morning	10	15.87	8	18.60
19. Afternoon	21	33.33	21	48.84
20. Needs Mobility	7	11.11	7	16.28
Total	266		178	

Note. Percents do not total 100 because of multiple responses.

Table 1b
Distribution of PEPS Area Responses for Distance Education Participants (Standard Score < =40)

	Classification (N=106)			
	Off Campus n=63		On Campus n=43	
PEPS Area	Responses	Percentage	Responses	Percentage
1. Noise Level	10	15.87	3	6.98
2. Light	10	15.87	7	16.28
3. Temperature	10	15.87	5	11.63
4. Design	5	7.93	8	18.60
5. Motivation	2	3.17	4	9.30
6. Persistent	2	3.17	4	9.30
7. Responsible	9	14.28	12	27.91
8. Structure	1	1.58	0	0.00
9. Learning Alone/ Peer Oriented	8	12.69	1	2.33
10. Authority Figures Present	1	1.58	0	0.00
11. Learn in Several Ways	20	31.74	6	13.95
12. Auditory	2	3.17	2	4.65
13. Visual	18	28.57	11	25.58
14. Tactile	3	4.76	3	6.98
15. Kinesthetic	2	3.17	3	6.98
16. Requires Intake	1	1.58	0	0.00
17. Evening-Morning	12	19.04	9	20.93
18. Late Morning	7	11.11	4	9.30
19. Afternoon	4	6.34	1	2.33
20. Needs Mobility	1	1.58	1	2.33
Total	128		84	

Note. Percents do not total 100 because of multiple responses.